Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

First Semester

UCHT24104 / CY3151 - Engineering Chemistry

(Common to all Branches)

Regulations – 2021 & 2024

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Classify the water quality parameters.	RE	1	2
2.	Why Calgon conditioning is superior than other conditioning?	UN	1	2
3.	Compare nanomaterials and bulk materials.	RE	2	2
4.	How will you prepare nanomaterials by chemical vapour deposition?	UN	2	2
5.	State phase rule and specify the terms involved in it.	UN	3	2
6.	Tell the requirements of composites.	RE	3	2
7.	Name the varieties of coal.	RE	4	2
8.	Define the term “Ignition Temperature”.	UN	4	2
9.	Outline the application of solar energy.	RE	5	2
10.	What is supercapacitor? Give one example.	UN	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Apply reverse osmosis principle for desalination of sea water and explain it with a neat diagram.	AP	1	16
		Or			
	b	Describe the process of demineralization of water using ion-exchange resins and specify its advantages.	AP	1	16
12.	a i	Describe the physical vapour deposition method for the preparation of nanoparticles.	AP	2	8
	ii	Summarize the optical, electrical and mechanical properties of nanomaterials.	UN	2	8
		Or			
	b	Enumerate the applications of nanomaterials in various filed.	UN	2	16

13.	a		Draw a neat simple eutectic one component system and explain the various phases present it.	AP	3	16
			Or			
	b	i	Recall the properties and applications of MMC.	UN	3	8
		ii	List the applications of polymer matrix composites.	UN	3	8
14.	a		With a neat sketch, demonstrate Otto-Hoffman by product method for the manufacture of metallurgical coke along with recovery of byproducts analysis.	AP	4	16
			Or			
	b		Discuss in detail the flue gas analysis using Orsat's apparatus.	AP	4	16
15.	a		Illustrate the principle working and applications of solar cells.	UN	5	16
			Or			
	b		Construct of lead-acid battery with neat diagram and explain the charging and discharging process.	UN	5	16